

THE EFFECT OF LEARNING MEDIA MANAGEMENT AND SELF-MOTIVATION ON SCIENCE LITERACY ABILITY

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Abstract. The basis of this paper is the teacher's ability to manage the learning media used during learning because it is an important component in delivering teaching materials. Learning objectives can be effectively achieved if teachers can manage the media needs of each teaching material and use it appropriately. The post-pandemic learning process is felt to be less meaningful and tends to be boring for students, so teachers must be able to innovate in choosing and creating learning media that can motivate students to learn. This study aims to determine the benefits and effects of using "KARCIL" media in improving the science literacy of students of Madrasah Tsanawiyah. The focus of the paper lies in the use of "KARCIL" media in Natural Sciences (IPA) subjects with a quantitative approach of the field research model through interviews and observations and the distribution of questionnaires to students used as samples. The results of the study obtained were (1) There was a significant influence between the use of "KARCIL" media on science literacy skills students, amounting to 0.001 with a confidence level of 10%, (2) There was a significant influence between self-motivation and science literacy ability of 0.011 with a confidence level of 10% and (3) There is a significant influence between the value of the coefficient of determination for the Nagelkerke model of 64% and 36% influenced by other factors that are not studied. From the results of the study, it can be concluded that good management of learning media and appropriate use by teachers can improve students' literacy ability and learning achievement.

Keyword. *Learning Media, Motivation, Science Literacy*

Abstrak. Dasar pemikiran dari tulisan ini adalah kemampuan guru dalam mengelola media pembelajaran yang digunakan saat pembelajaran karena merupakan komponen penting dalam menyampaikan materi ajar. Tujuan pembelajaran secara efektif dapat tercapai jika guru dapat mengelola kebutuhan media setiap materi ajar dan secara tepat dalam menggunakannya. Proses pembelajaran pasca pandemi dirasakan kurang bermakna dan cenderung membosankan bagi siswa, sehingga guru harus mampu berinovasi dalam memilih dan membuat media pembelajaran yang mampu membangkitkan motivasi siswa dalam belajar. Penelitian ini bertujuan untuk mengetahui manfaat dan pengaruh penggunaan media "KARCIL" dalam meningkatkan literasi sains siswa Madrasah Tsanawiyah yang diteliti. Fokus tulisan terletak pada penggunaan media "KARCIL" pada mata pelajaran Ilmu Pengetahuan Alam (IPA) dengan pendekatan kuantitatif model field research melalui wawancara dan observasi dan penyebaran angket pada siswa yang digunakan sebagai sampel. Hasil penelitian yang diperoleh adalah (1) Terdapat pengaruh secara signifikan antara penggunaan media "KARCIL" terhadap kemampuan literasi sains pada siswa MTs sebesar 0,001 dengan taraf kepercayaan 10% (2) Terdapat pengaruh yang signifikan antara motivasi diri terhadap kemampuan literasi sains sebesar 0,011 dengan taraf kepercayaan 10 % dan (3) Terdapat pengaruh keduanya dengan nilai koefisien determinasi untuk model Nagelkerke sebesar 64% dan 36% dipengaruhi oleh faktor lain yang tidak diteliti. Dari hasil penelitian dapat disimpulkan bahwa pengelolaan media pembelajaran yang baik dan secara tepat digunakan oleh guru dapat meningkatkan kemampuan literasi dan prestasi belajar siswa.

Kata Kunci. *pengelolaan media pembelajaran, literasi sains, motivasi diri*

A. INTRODUCTION

Social media today has provided many ways of teaching that are centered on students, but most teachers are still comfortable with the conventional learning model. (Ayu and Manuaba, 2021) argue that interesting learning media is needed by teachers in the process of delivering material in the classroom. This means that teachers can offer students the desired learning model so that learning is more enjoyable. One of the efforts that can be made is to develop learning media agreed upon in the classroom between students and teachers that can encourage an effective learning process. This is to the view (Suryadi, 2015), that learning media that supports the absorption of more information can be one of the needs in creating effectiveness in learning activities. Learning media is one of the important components in the renewal and development of the learning process. According to the Association for Education and Communication Technology (AECT), media is all forms used for the process of distributing information. In line with the above opinion (Miarso, 1989) argues that media is everything that can be used to channel messages that can stimulate students' thoughts, feelings, attention, and ability to learn (Rohani, 2019).

Student interest in the learning process will affect the quality of knowledge obtained and possessed. Many students can read well but have not been able to interpret correctly. From data from the Central Statistics Agency (BPS) 2012, it has been noted that out of ten Indonesians aged more than 10 years are more dominant in watching television than reading and there are only three people out of 20 citizens who intensely read both newspapers, books, and magazines. This fact is also coupled with the fact that every high school student does not like to read textbooks that have been provided/lent by the school to each student according to their level. This condition is different from some developed countries that require secondary-level students to finish a certain number of reading books before they graduate from school. Taufiq Ismail, a national writer, once stated that in Germany students who will graduate at each level are required to complete a predetermined number of books as a must and rules that must be carried out by every educational institution there. Indonesia since 1997 there has been no educational institution that requires students to complete 1 or 2 book titles as a requirement for graduation in school. The government places high hopes on educational institutions and families to play an active role in the formation of reading habits. Many governments from several countries design the field of education to support the formation of a reading culture, such as in Indonesia with the concept of literacy and numeracy guidance.

About student learning outcomes, especially in the aspect of science literacy skills carried out by the OECD in PISA in 2015 showed that "science literacy skills for students at the junior high school level in Indonesia reached an average score of 62 and 69 which was relatively low. In addition, from the test results in 2018, Indonesian students obtained a score of 396, entering in 75th place out of 80 countries. This shows that the quality of learning and science literacy in Indonesia is far below OECD member countries. This fact makes teachers continue to strive to improve their professionalism. With five competency standards that must be developed by teachers and one of them is pedagogic competence (classroom management and learning), it is expected to be able to improve teacher skills in managing classes well during the learning process.

The results of the research conducted by the results obtained that there are differences in the achievement of students who use PowerPoint media with students who do not use PowerPoint media or conventional learning. The same study was conducted with the results

(Nurwidyawati, 2018)(Yulianti, 2019)The coefficient of simultaneous determination (R^2) is significant at 0.578 or worth 57.8%, which means that the use of learning media in economics subjects in SMA Negeri 1 Mempawah students for class XI social studies has improved learning outcomes at a fairly high level of significance. In line with the research above, in his research the percentage of influence between the application of the guided discovery learning model on students' science literacy skills in the medium category was 48.2%, the low category was 13.4%, and the very low category was 34.8%. The conclusion of the research above is that the application of guided discovery learning models and science literacy can improve student learning outcomes. However, there have been no previous studies that researched the correlation between the use of learning media and science literacy to increase student achievement. (Merta, 2020)

His book states that learning media can support the absorption of more information and become one of the needs that play a role in increasing the effectiveness of the learning process. Learning media can play an important role in changing the dynamics and development of the learning process in the classroom. The Association for Education and Communication Technology (AECT) states that media is all forms used for the process of delivering information. In line with the above opinion, Miarso (1989) believes that media is everything that can be used to channel messages and act as a stimulant for students' thoughts, feelings, attention, and ability to learn (Rohani, 2019). The results of research conducted by Ayu Marddiyah on self-motivation and self-efficacy obtained data that there was a positive and significant influence between self-efficacy and science learning outcomes of grade VI MIN 14 AL Azhar Asy Syarif Indonesia students with the value of the coefficient of determinants of self-efficacy and science learning outcomes was 30.36%. From some of the opinions above, learning media and motivation are two important factors that can help students to improve their learning achievement. Learning media also plays a role in the teaching and learning process which has a function to clarify the meaning of the message conveyed by the teacher so that learning objectives are achieved optimally (Kustandi & Darmawan, 2020). (Suryadi, 2015) (Marddiyah, 2019)

From several previous studies, there needs to be further research on the influence of good management of learning media and self-motivation on students' science literacy skills. The learning medium in this study is "KARCIL", which is used by science gurus From this research, science teachers are expected to be more creative and innovative in managing and choosing learning media so that the learning process is more interesting and meaningful. Teachers must strive to guide students in science literacy as a reinforcement of knowledge and understanding of the material delivered in the classroom. With the above efforts, it is hoped that the learning process will be more enjoyable so that student learning achievement can continue to increase.

B. RESEARCH METHODS

The approach used in research with descriptive quantitative methods. The object of research was located at MTs Almaarif 02 Singosari and grade 8 students as respondents. The sample was taken from as many as 50 respondents of grade 8 consisting of classes 8A, 8B, and 8C. In this study, 3 variables to be studied have been determined, namely X_1 (Use of KARCIL Media), X_2 (Self Motivation), and Y (Science Literacy).

In the initial observation, grade 8 students in science learning did not use media, only student worksheet guidance, the process of using "karcil" media in learning can be observed and the results can be compared with the data obtained after the media is used.

Sampling is carried out with consideration techniques that have been adjusted to the conditions and characteristics of students in the classroom. Consideration is conveyed by the teacher (IPA) who teaches in the form of questionnaires/questionnaires that use one variable. Assessment with Likert scale 1-5 for reference in measuring respondents' answers as a whole. Furthermore, the interpretation of the measured variable indicators is obtained with an error level of 90% or equivalent to 0.1, which will then be analyzed using statistical tools with an ordinal linear regression (RLO) model with indicators that have been determined at the beginning of the study

C. ANALYSIS AND DISCUSSION

Data Analysis

Observation and data collection in this study was carried out from March 2023 to May 2023, the first and second weeks of initial and subsequent observations, identification, and research on the use of "KARCIL" media and motivation in grade 8 science material, the subject of the digestive system and excretory systems in humans.

Respondent Spread Data

Table 1. Respondent Spread

	N	Marginal Percentage
Student Learning Achievement 3	9	18.0%
Achievement 4	35	70.0%
5	6	12.0%
Valid	50	100.0%
Missing	0	
Total	50	

Table 1. shows an overview of data from 50 respondents in MTs. Almaarif 02 Singosari with the following distribution: 25 students of grade 8A and 25 students of grade 8B. Furthermore, the data obtained provides an overview of the information on the distribution of answers of 50 respondents, all of which are valid with category 3 (Good Enough) as many as 9 respondents, category 4 (Good) as many as 35 respondents, and category 5 (Very Good) as many as 6 respondents. After 50 respondents are declared valid, the suitability test of the ordinal logistic linear regression model will be used in data analysis as shown in the following table

Model Compatibility

Table 2. Model Match

	Chi-Square	Df	Say.
Pearson	122.587	94	.025
Deviance	45.211	94	1.000

Link function: Logit.

In Table 2 it is obtained that ordinal logistic linear regression models are feasible to be used as a tool in data analysis with a Deviance significance value greater than the error level of 10%. Furthermore, for checking the influence of each variable, the following table is used:

Value of Coefficient of Determination

Table 3. Value of Coefficient of Determination

Cox and snell	.514
Nagelkerke	.640
Mcfadden	.444

Table 3 explains that in the RLO analysis, the suitability of the model that uses the most appropriate coefficient of determination value is the Nagelkerke model with a Pseudo R-Square value, the use of KARCIL media and motivation has influenced and has a correlation with increasing science literacy by 64% and 36% influenced by other variables that are not used in this study.

Uji Wald

The next step is to perform the Wald test as shown in the following table

Table 4. Uji Wald

	Estimat ed	Std. Error	Forest	D f	Say.	90% Confidence Interval	
						Lower	Upper
Threshold [Y = 3]	25.126	6.232	16.255	1	.000	14.875	35.377
	32.033	7.426	18.609	1	.000	19.819	44.247
Location X1	.273	.086	10.160	1	.001	.132	.414
	.197	.077	6.499	1	.011	.070	.324

Link function: Logit.

Table 4. Test parameter estimation with the Wald Test resulting in a logistic regression equation:

$$\text{Logit } (Y_3) = 25.126 + 0,273X_1 + 0,197X_2$$
$$\text{Logit } (Y_4) = 32,033 + 0,273X_1 + 0,197X_2$$

The results of the Wald test are the significance value of using KARCIL media of 0.001 and motivation of 0.011 is smaller than the error level value of 0.1. This means that the use of KARCIL media and motivation has a correlation level and has a significant effect on the science literacy of grade 8 students at MTs Almaarif 02 Singosari. The next Wald Test result to determine the level of science literacy of students based on the Odds value of the KARCIL media use ratio is (X_1) where the opportunity to use KARCIL media is 1,313 times higher than students who do not use KARCIL media on their science literacy skills. For $\Psi = e^{0,273} = 1,313$ the Odds value the motivation ratio (X_2) is 2.178. This shows that students' achievement levels improved well by 2,178 times compared to students who did not use science literacy. $\Psi = e^{0,197} = 2,178$

In the theory developed by Jean Piaget, children are born with several sensorimotor schematics, which provide a framework for the child's early interaction with his environment. Piaget believed that we will all go through these stages, although each stage may be passed in a different period and age. Everyone will experience a period when our brains are mature enough to allow for new types of logic (Matt Jarvis, 2011 in Dewayani Sofie 2017). From this explanation, it can be interpreted that the child's initial experience will be determined by his sensorimotor schemat. This also happens when students receive learning in the classroom, each student will have a different experience and depending on the situation and conditions of the classroom environment where he is learning.

There is a significant influence between the use of "KARCIL" media and self-motivation to increase science literacy for certain materials in science learning for MTs students. Grade 8 shows that Piaget's theory is proven. Students who obtain science subject matter using media are more enthusiastic and enthusiastic in learning because the knowledge transfer process experienced is more interesting. This condition can stimulate the growth of stronger self-motivation from students to follow the learning process well. Not only the existence of "KARCIL" media that has been prepared by teachers is also able to increase students' interest in science literacy. (Hastuti, 1996/1997: 178) states that the media can arouse student attraction. He also explained that media made with various colors will be more attractive and arouse students' attention and interest in learning". With the media used by teachers when providing lesson material, it turns out that it can help abstract ideas in a realistic form because it can provide a concrete picture of the content of the material depicted. Not only that, media that can improve literacy skills can encourage creativity and more communication in social life (Abdillah, 2024)

The results obtained that there is a significant influence on the use of "KARCIL" media and self-motivation to increase science literacy for science learning materials for MTs students. Grade 8. These results also provide evidence that the theory proposed by (Mairso, 1989) is appropriate and can be applied in the field or classroom as a place of learning. If the use of learning media is prepared optimally and students have strong self-motivation, these two factors can be a support for success in delivering science learning materials.

D. CONCLUSION

The conclusion that can be generated from this study is that there is a significant correlation and influence between the use of KARCIL media and self-motivation to increase

science literature for grade 8 students at MTs Almaarif 02 Singosari with a significant value of 0.001 and 0.011 smaller than 0.1 with a confidence value of 10%. The use of appropriate learning media chosen or made by teachers can increase science literature on the material of the digestive system and excretory system in humans. Managing and building student motivation in the classroom can provide enthusiasm for students in learning so that student science literacy becomes better or increases.

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